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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/050,182

01/18/2002

Robert J. Dances

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02/11/2004

Patent Documentation Center  
Xerox Corporation  
Xerox Square 20th Floor  
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Rochester, NY 14644

EXAMINER

HINZE, LEO T

ART UNIT

PAPER NUMBER

2854

DATE MAILED: 02/11/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/050,182

Applicant(s)

DANCES, ROBERT J.

Examiner

Leo T. Hinze

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 January 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 January 2002 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 2.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

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## **DETAILED ACTION**

### ***Double Patenting***

1. Applicant is advised that should claims 6 and 7 be found allowable, claim 7 will be objected to under 37 CFR 1.75 as being a substantial duplicate of claim 6 thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

### ***Claim Objections***

2. Claim 2 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 1 is directed to a printhead apparatus, with the electric paper of line 15 being a recitation of the intended use of the printhead. As such, claims directed to electric paper, such as claim 2, do not further limit the structure of the printhead claimed in claim 1.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior

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art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-3, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Doggett et al., US 5,274,401 in view of Motegi et al., US 6,478,413.

Doggett teaches:

- a printed wiring board printhead for forming an image on electric paper comprising a glass substrate (50, col. 7, lines 35-36) having a first planar surface and a second planar surface (Fig. 2), said first planar surface and said second planar surface being substantially parallel, said glass substrate having, an edge between said first planar surface and said second planar surface; a plurality of conductive traces (53A, Fig. 2) formed on said first planar surface of said glass substrate; a plurality of conductive bonding pads (54, Fig. 2) formed on said first planar surface of said glass substrate; a plurality of electrodes (55A, Fig. 2) formed on said first planar surface of said glass substrate, said plurality of conductive traces connecting said a plurality of conductive bonding pads to said plurality of electrodes, said plurality of electrodes being substantially parallel and equally spaced apart; and driving means (51A, Fig. 2) connected to said plurality of conductive bonding pads to send an electrical signal to each of said plurality of electrodes, said electrical signal generating an electric field between said electrode and said paper (claim 1);
- wherein said electric paper comprises a retaining medium with a plurality of rotatable elements, said rotatable elements having at least two different colored sides

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and an electrical anisotropy, each of said plurality of electrodes having a corresponding rotatable element such that said electric field between said electrode and said electric paper causes said corresponding rotatable element to rotate to display one of said at least two different colored sides (claim 2);

- wherein said driving means is an integrated chip (col. 7, lines 57-58) bonded to said plurality of conductive bonding pads (claim 3);
- a mount (56, Fig. 2) attached to said second planar surface of said glass substrate (claim 9).

Doggett does not teach a plurality of electrodes formed on edge of said glass substrate (claim 1).

Motegi teaches a printhead with substrate (6, Fig. 2) having a curved edge, and further with electrodes (4, Fig. 2) formed on said edge.

Regarding claim 1, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Doggett wherein the electrodes were also on the edge of the substrate, because Motegi teaches that electrodes on the edge of the substrate are well-known in the art, and one having ordinary skill in the art would recognize the advantage of such an arrangement, such as the possibility of placing the electrode closer to the print medium.

Regarding claims 2, 3 and 9, the combination of Doggett and Motegi teaches all that is claimed as discussed above.

5. Claims 4-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Doggett et al. in view of Motegi et al. as applied to claim 1 above, and further in view of Abe, US 5,576,742.

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The combination of Doggett and Motegi teaches all that is claimed as discussed in the rejection of claim 1 above, including:

- wherein said plurality of electrodes comprises said plurality of conductive traces formed on said first planar surface of said glass substrate said plurality of conductive traces being termed of a first metal, and a plurality of electrode layers formed on said first planar surface of said glass substrate over said plurality of conductive traces and partially on said edge of said glass substrate (see rejection of claim 1 above) (claim 4);
- wherein said first metal of said plurality of conductive traces is copper (col. 7, lines 41-45) (claim 5).

The combination of Doggett and Motegi does not teach:

- said plurality of electrode layers being formed of a second metal (claim 4);
- wherein said second metal of said plurality of electrode layers is rhodium/platinum (claims 6 and 7).

Abe teaches an electrostatic recording head, including using platinum for the electrodes, because platinum is inert, and not affected by oxidation, and is highly resistant to corrosion. Platinum, however, is expensive (col. 2, lines 59-67).

Regarding claims 4 and 6-7, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to further modify Doggett to use copper for the conductive traces and platinum for the electrodes, because Abe teaches that platinum electrodes are advantageous in that platinum resists corrosion and is unaffected by oxidation. One having ordinary skill would recognize that the use of the two different materials would allow the

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benefits of the more expensive platinum, while keeping overall cost down by using relatively less expensive copper for the conductive traces.

Regarding claim 5, the combination of Doggett, Motegi, and Abe teaches all that is claimed as discussed above.

6. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Doggett et al. in view of Motegi et al. as applied to claim 1 above, and further in view of Bakewell, US 4,415,403.

The combination of Doggett and Motegi teaches all that is claimed as discussed in the rejection of claim 1 above, except an isolation resistor formed on each of said plurality of conductive traces.

Bakewell teaches an electrostatic printhead (Fig. 1), including resistors (82, Fig. 8) on each of the conductive traces before the electrodes to help limit the current which can be applied to the writing electrode to prevent arcing from the electrode to the printing medium (col. 6, lines 6-10).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify Doggett to include resistors in the path to the electrode, because Bakewell teaches that resistors can help limit the current which can be applied to the writing electrode to prevent arcing from the electrode to the printing medium.

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***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leo T. Hinze whose telephone number is (571) 272-2167. The examiner can normally be reached on M-F 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Hirshfeld can be reached on (571) 272-2168. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Leo T. Hinze  
Patent Examiner  
AU 2854  
6 February, 2004

  
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